CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/W.No.09/KAK/CSR-03/1095b/QB/2015-16 15.03.2016

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

***CUSTOMER**	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
***AGENCY**	:	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
***NAME OF THE WORK**	:	Pothole filling in Ward No.09 in Vidyaranyapura Sub Division, BBMP, Bangalore.
***REFERENCE**	:	EE/BTP/BBMP/E-PMT/243/2015-16 Dated: 26.02.2016
SAMPLE ID	:	Bitumen – Sample 2
SAMPLE RECEIVED ON	:	13.03.2016
DATE OF TESTING	:	15.03.2016

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	64	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	47	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	296	Min. 220

*Information is furnished by the Customer/Representative.

Note:

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⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

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VISHWANATH. I.A.
Chief Executive Officer

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

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Job No.: CTCE/W.No.09/KAK/WMM/Gradation/2014-15

05.03.2016

GRADATION FOR WMM

MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. K. Anil Kumar,**
#84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.

Name of Work : Pothole filling in Ward No.09 in Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/243/2015-16 Dated: 26.02.2016

Date of Testing : 05.03.2016

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8595**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	250	250	2.9	97.1	95-100
22.4	2585	2835	33.0	67.0	60-80
11.2	1560	4395	51.1	48.9	40-60
4.75	1210	5605	65.2	34.8	25-40
2.36	1010	6615	77.0	23.0	15-30
0.600	1000	7615	88.6	11.4	8-22
0.075	685	8300	96.6	3.4	0-8

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Job No.: CTCE/W.No.09/KAK/WMM/AIV/2014-15 05.03.2016

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
Name of the Work	Pothole filling in Ward No.09 in Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/243/2015-16 Dated: 26.02.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	05.03.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	386	387	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregate Impact value = percent fines	21.76	21.96	
	100* (W_2/W_1)%			21.86

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/W.No.09/KAK/WMM/S-T/2014-15 05.03.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
Name of Work	Pothole filling in Ward No.09 in Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/243/2015-16 Dated: 26.02.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	05.03.2016

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.58%**

Elongation Index = **13.12%**

Result : Combined Flakiness & Elongation index 24.70%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

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Job No: CTCE/W.No.09/KAK/BC/Bitumen/2014-15 18.03.2016

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
NAME OF THE WORK	Pothole filling in Ward No.09 in Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/243/2015-16 Dated: 26.02.2016
SAMPLE I/D	Pothole filling to roads in Ward No.09.
DATE OF TESTING	18.03.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	473.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	26.50
7. Bitumen content in %	5.20	5.30
8. Average	**5.25**	

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Job No: CTCE/W.No.09/KAK/BC/Bitumen/2014-15 18.03.2016

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K. Anil Kumar,** #84-L, 2nd Floor, 3rd Cross, 4th Main, HAL 3rd Stage, Bangalore – 75.
NAME OF THE WORK	Pothole filling in Ward No.09 in Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/243/2015-16 Dated: 26.02.2016
SAMPLE I/D	Pothole filling to roads in Ward No.09.
DATE OF TESTING	18.03.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	46.33	9.77	9.77	90.23	79-100
9.5	31.22	6.59	16.36	83.64	70-88
4.75	70.22	14.81	31.18	68.82	53-71
2.36	65.33	13.78	44.96	55.04	42-58
1.18	48.32	10.19	55.15	44.85	34-48
0.6	53.32	11.25	66.40	33.60	26-38
0.3	45.36	9.57	75.97	24.03	18-28
0.15	40.26	8.49	84.46	15.54	12-20
0.075	41.32	8.72	93.18	6.82	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	36.36	7.68	7.68	92.32	79-100
9.5	46.36	9.79	17.47	82.53	70-88
4.75	66.35	14.01	31.48	68.52	53-71
2.36	70.22	14.83	46.31	53.69	42-58
1.18	71.35	15.07	61.38	38.62	34-48
0.6	51.36	10.85	72.23	27.77	26-38
0.3	30.22	6.38	78.61	21.39	18-28
0.15	28.65	6.05	84.66	15.34	12-20
0.075	36.36	7.68	92.34	7.66	4-10

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